I N S E C T P E S T S U R V E Y B U L L E T I N

Vol. 14 Summary for 1934 No. 10

INTRODUCTION

The weather during much of the year showed wide departure from normal over the entire United States. December 1933 and January 1934 were abnormally warm over much of the country.. However, during the last week in January a cold wave spread eastward and southward from the Northwest to the Atlantic. During February the cold continued over the eastern half of the United States, while abnormally warm weather prevailed over the western half, particularly in the Northwest. Much of the northeastern part was covered with snow during most of the month.

During March the rainfall was deficient in the States that were to suffer from drought later in the season, but was normal from the Mississippi River eastward to the Atlantic.

April and May were warm and dry, over the whole country, and by the end of May the most extensive drought in climatological history of the United States had developed in the interior Northwestern, Midwestern, and Southwestern States. During June, the condition was somewhat relieved in the Dakotas, Minnesota, and Wisconsin, but remained about the same over southern and western parts of the dry area. July normal temperatures, the highest on record in all the States except California and Washington, greatly intensified the drought.

The unusually mild weather in the Northwest was favorable to insect pests, while the severe cold weather in the East proved detrimental to many species in hibernation. The dry spring was favorable to chinch bug development, but the drought that followed was detrimental to several other pests.

INSECT PESTS

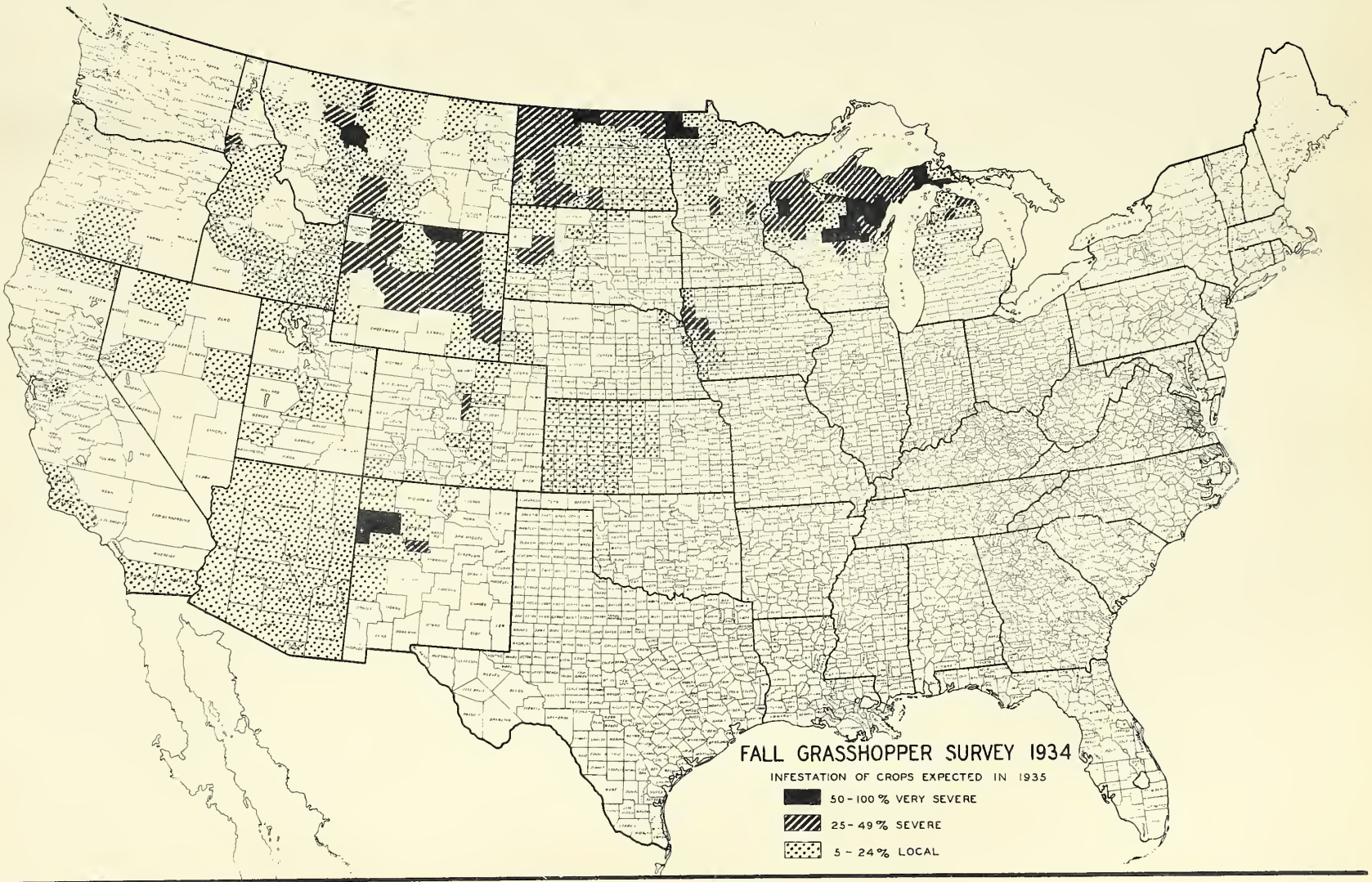
GRASSHOPPERS

Surveys conducted in the fall of 1933 cooperatively by the Bureau of Entomology and Plant Quarantine and the States of North Dakota, Montana, South Dakota, Idaho, Wyoming, and Minnesota indicated that extremely severe grasshopper infestation could be expected in 1934 in the Northern Great Plains and Rocky Mountain regions. This infestation developed about as indicated by the surveys, hatching being heaviest in Montana, North Dakota, South Dakota, and Minnesota. Grasshoppers were also generally abundant in Idaho, Wyoming, Nebraska, Wisconsin, and Michigan. An extensive cooperative control campaign was organized under Federal funds for the control of the anticipated outbreak in these States. As the season progressed it became evident that widespread control operations would be required in 18 States, including Arizona, California, Colorado, Iowa, Kansas, Nevada, New Mexico, Oregon, and Utah, in addition to those referred to above. The most serious infestation, however, was in the Northern Great Plains and Northern Rocky Mountain regions, where grasshoppers hatched in sufficient numbers to have caused widespread devastation had no control been practiced. The control campaign not only prevented any general damage, but undoubtedly very materially reduced egg deposition during the fall, with the result that, although there will probably be some serious infestation next year in Idaho, Wyoming, Montana, North Dakota, South Dakota, Minnesota, Wisconsin, and Michigan, the egg surveys conducted last fall indicate that, except in the two last-named States, the infestation is definitely lower than at a corresponding time in 1933. Extreme drought and high temperatures possibly aided in reducing populations in portions of the infested area, although such conditions necessitated the use of increased quantities of poisoned bait.

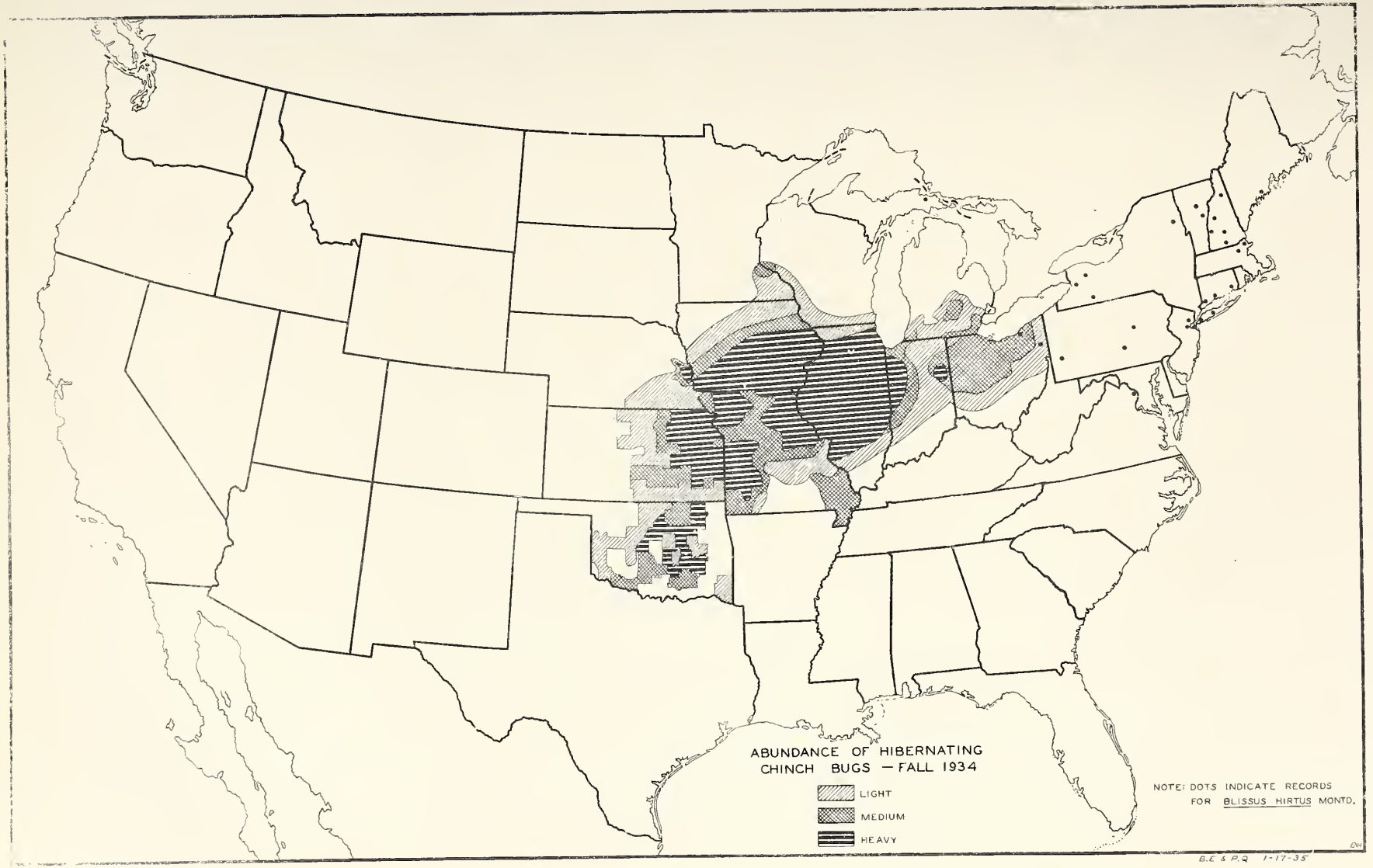
Results of the egg survey last fall (see map) are given in terms of the approximate number of acres of susceptible crops that will require baiting. They are as follows: Arizona, 81,281; California, 101,000; Colorado, 89,694; Idaho, 182,468; Iowa, 150,000; Kansas, 102,000; Michigan, 610,383; Minnesota, 728,413; Montana, 614,889; Nebraska, 186,519; Nevada, 107,500; New Mexico, 16,400; North Dakota, 3,368,158; Oregon, 23,800; South Dakota, 275,600; Utah, 40,000; Wisconsin, 1,682,668; and Wyoming, 546,000. (J. R. Parker, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CHINCH BUG

One of the most severe and widespread chinch bug infestations on record developed in the Corn Belt during the year. The extremely mild weather and the dry spring over a considerable portion of the region permitted a high percentage of the large fall population of bugs to overwinter successfully. Migrations began exceptionally early and continued approximately a month in many heavily infested areas. States suffering most severely were Missouri, Kansas, Illinois, Iowa, and Indiana. Less severe infestations occurred in northern Oklahoma, southeastern Nebraska, the northern half of Ohio, and the southern parts of Michigan and Minnesota. Extensive control operations in the Corn Belt were required to protect the corn from migrations of bugs from small grains. A Federal appropriation made possible more extensive control



COUNTY OUTLINE MAP OF THE UNITED STATES



U. S. DEPARTMENT OF AGRICULTURE

operations than are ordinarily practiced, resulting in the protection of much of the corn from damage by first-brood bugs. More than 8,000,000 gallons of creosote was used in construction of barriers. Fall surveys of the infested area, in most instances conducted cooperatively by the Bureau of Entomology and Plant Quarantine and the States involved, and reports from State entomologists indicate that chinch bug populations are heavier in general now than they were last fall and that the area where the bugs are overwintering in numbers is considerably extended over that of last year, reaching to the northern boundary of Iowa, into the southern tier of counties in Minnesota and Wisconsin, and well up into the State of Michigan on the north; to the eastern boundary of Ohio on the east; to the middle of Kansas on the west; and south to the southern boundaries of Oklahoma and Missouri.

The accompanying map indicates the relative severity of infestation based on present available data on abundance. In view of the lack of a standardized method of making surveys the degrees of severity indicated are only approximate. The States of Oklahoma, Kansas, Missouri, Iowa, Minnesota, Michigan, and Nebraska conducted detailed surveys cooperatively with the Bureau of Entomology and Plant Quarantine. The data for Wisconsin, Indiana, and Ohio are based on severity of infestation in 1934, combined with data obtained from the State workers and incidental observations made by workers at Federal laboratories regarding fall abundance of hibernating bugs. Possibly some infestation will occur in the south-central portion of Missouri, which was not surveyed. The northwestern corner of Iowa is indicated by C. J. Drake as being very lightly infested. Unless spring weather is unfavorable for chinch bug development, severe damage may be expected and extensive control operations will be required this spring.

Minor damage, primarily to lawns, was also reported from Vermont, New York, New Hampshire, and Massachusetts. Damage in eastern Ohio and the Eastern States was probably due in the main to Blissus hirtus Montd. (P. N. Annand, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HESSIAN FLY

At harvest time the hessian fly was, in general, at very low ebb in numbers throughout the winter-wheat regions. The severe drought west of the Appalachian Mountains evidently acted as an effective restraint on the multiplication of the pest. Injury was recorded in scattered districts in southeastern Kansas, southern Missouri, east-central Indiana, middle Tennessee, northern Ohio, south-central Pennsylvania, and central North Carolina. As the season progressed, however, some change in conditions was observed. For instance, east of the Appalachians the rate of infestation showed a distinct increase. In New York the average infestation was 10 percent, or more than three times as high as in 1933. In Maryland the infestation was light, averaging 5 percent, but heavier than that of 1933. In Pennsylvania, however, serious infestation was general and considerable damage was done by the fall generation. The average rate of infestation for the State had advanced from 3 percent in 1933, to 23 percent in 1934. Early sown fields were badly damaged. In Virginia and North Carolina late sowing prevented any widespread increase in infestation, but occasional early sown fields were found heavily infested. It is believed that together with some infestation in volunteer wheat, these fields may be sources of serious

local infestation in the spring of 1935.

In the East Central States the fall surveys showed but little change from the conditions noted previously at harvest time. Only a few fields inspected showed any sign of immediate or prospective serious damage, and growing conditions for small grains were in general favorable.

In the West Central States drought had induced premature emergence from the summer puparia, the flies issuing immediately after the first effective rains, early in September. No volunteer wheat was yet above ground when the emergence began, therefore the flies deposited but few eggs. As this emergence occurred about 3 weeks in advance of the average planting date, the infestation over a considerable portion of the territory was very light. Some fields in southeastern Kansas and southwestern Missouri showed relatively high infestation last fall. (P. N. Annand, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EUROPEAN CORN BORER

The usual fall survey of the European corn borer was conducted by the Bureau of Entomology and Plant Quarantine. The marginal territory around the area known to be infested was also scouted during the past season. These activities were under the immediate supervision of A. M. Vance, of the Toledo, Ohio, laboratory. The results are as follows: Over the 1-generation area as a whole, there was a general decrease in infestation in 1934 from that of either 1932 or 1933. In the 2-generation area, definite increases in populations in 1934 over those of 1933 were evident only in southern Connecticut. The heaviest infestation in the 1-generation area in 1934 occurred in the New York counties bordering Lake Ontario and in a limited area in Michigan and Ohio, extending a short distance southwestward from the western end of Lake Erie. In Indiana the chief concentration of population continued to be in Steuben, De Kalb, and Allen Counties, in the extreme northeastern corner of the State. In the 2-generation area the heaviest infestation remained in eastern Massachusetts, Rhode Island, southern Connecticut, and on the eastern half of Long Island, N. Y. The general level of infestation in 1934 tended to be considerably higher in the 2-generation than in the 1-generation area. In the former, 16.1 percent of the fields surveyed in 1934 were uninfested and 26.7 percent had populations of from 1 to 25 borers per 100 plants; in the 1-generation area, 28.8 percent of the fields surveyed this year were uninfested and 55.9 percent had populations of from 1 to 25 borers per 100 plants. In the former area, 21.2 percent of the fields were infested with more than 200 borers per 100 plants, while in the latter less than half of 1 percent of the fields were infested to the same degree. The general decrease of infestation in 1934 in the Great Lakes region is attributed to subnormal moisture last year, which reached extreme drought in May, June, and July, when the temperatures were abnormally high. Such excessive heat and drought over an extended period of time covering pupation of the borer in the spring, oviposition of the moths, and summer establishment of young larvae in corn, proved extremely adverse to the propagation of the species in the 1-generation area. Drought, which also prevailed in certain parts of the 2-generation area, limited the increase of the borer.

The scouting work revealed no extension of the range of the corn borer except in the following counties which are in every case adjacent to areas previously known to be infested: Hamilton County, Ohio; Somerset County, Md.; Sussex County, Del.; Cumberland County, N. J.; and Northampton County, Va. In addition to the marginal survey, a less detailed reconnaissance survey was conducted in Wisconsin, Illinois, Kentucky, West Virginia, and Virginia, outside the present known limits of infestation. No new infestations were found. (P. N. Annand, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CORN EAR WORM

During the third week in April the corn ear worm appeared in central and southern Florida, southern Louisiana, and Hidalgo County, Tex. By the middle of June heavy damage was being reported from the Carolinas to southern Iowa and Kansas. Early in July larvae appeared in southern New York and Connecticut. Serious damage was already being done to sweet corn and field corn in the East Central States. There was probably more damage by this insect in the upper Mississippi Valley than there has been for many years. The insect was not so destructive in the northeastern part of its range as it was last year.

ARMYWORM

Early in June heavy flights of the armyworm were observed in Indiana and Illinois. As the month advanced, light outbreaks were reported from Illinois and severe outbreaks from Wisconsin, Minnesota, and Iowa. In August the worst outbreak of many years occurred in southeastern Minnesota and north-central Iowa.

GREEN BUG

Late in February the green bug appeared in Kingfisher and Alfalfa Counties, Okla. In April the aphid became numerous in wheat, barley, and timothy in southern Missouri and was reported as destroying wheat in southwestern Nebraska and throughout the wheat-growing sections of Kansas and eastern Oklahoma and the eastern half of Colorado. By the middle of May over 22,000 acres of wheat were a total loss, 50,000 more were damaged in Oklahoma, and 21,000 acres of oats were completely destroyed.

WEBWORMS

Two species of webworms, Loxostege sticticalis L. and L. commixtalis Walk., appeared in unusual numbers from Minnesota and North Dakota southward to Nebraska, Kansas, and Colorado. Very heavy flights of moths were observed during May. Larvae became very abundant in Minnesota and North Dakota during August. Larvae of L. sticticalis were so numerous in Frontier County, Nebr., that where migrating individuals crossed railroad tracks, they impeded the movement of freight trains. Crops were considerably damaged in Kansas and Nebraska. The garden webworm (L. similalis Guen.) was reported as damaging alfalfa and soybeans from Ohio to Iowa, Missouri, and Nebraska.

ALFALFA WEEVIL

Surveys made in the fall of 1933 indicated menacing abundance of adults of the alfalfa weevil throughout hay-growing districts of Utah, in western Nevada, and in the infested area of southern Oregon. This outlook was confirmed by the spring check-up following the very mild winter, and the early spring gave the weevil a good start in all sections. Moreover, in Utah, at least, the general scarcity of precipitation in the spring minimized local weather differences, placing all districts on about the same developmental schedule. The warmth and drought in the spring when the heat amounted to twice the normal number of day-degrees and the precipitation measured one-fourth of normal at Salt Lake City, prevented the usual slowing-up effect of spring weather on the egg population and permitted hatching to keep pace with oviposition, thus spreading the larval attack over a much longer period. Under the circumstances, the threatened outbreak failed to materialize. In western Nevada the situation was complicated by a severe outbreak of the pea aphid very early in the spring. The aphids stunted and partially killed the alfalfa growth, exaggerating the unseasonable heat and drought as regards weevil activities. The aphid damage, together with the grazing which was generally adopted for aphid control, greatly reduced the abundance of alfalfa weevil larvae, which were then exceptionally well parasitized by Bathyplectes curculionis Thoms. As a result, the new-generation population of adult weevils is extremely small. The weevil survey last fall indicates a comparatively low level of adult abundance, the principal exceptions being in western Nevada and western Idaho, where the weevil is especially scarce, and in Salt Lake and Box Elder Counties, Utah, where the populations are mostly menacing. The Grand Junction and Delta districts of Colorado and the Rexburg district in Idaho showed sizable populations in nearly half the fields. In the remainder of the weevil territory small and varying proportions of the fields have injurious populations. No new extensions of the weevil-infested territory were discovered during the year. (J. C. Hanlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

VETCH BRUCHID

During June 1931 the vetch bruchid (Bruchus brachialis Fahraeus) was first collected in the United States at Haddon Heights, Camden County, N. J. Later in that year it was found in Burlington and Atlantic Counties, N. J., Kent County, Del., Wicomico County, Md., and Rowan County, N. C. In 1932 it was found in additional localities in Maryland, and in Virginia near the District of Columbia. During July 1934 the weevil was reported from Franklin County, Pa., and Rowan and Iredell Counties, N. C. The present known distribution is indicated on the accompanying map.

SUGARCANE BORER

As in past years, the sugarcane borer was found attacking sugarcane, corn, rice, and sorghums within a radius of from 50 to 150 miles of the Gulf of Mexico in Texas, Louisiana, and Mississippi, and in the southern half of Florida. The greatest injury occurred on sugarcane in Louisiana and Florida, and on corn and rice in Louisiana and Texas. In Louisiana a normal infestation occurred this season in the eastern part of the sugarcane section. In the


VETCH BRUCHID
Known distribution to Dec. 31, 1934

western part, the infestation developed somewhat later than usual, but owing to rapid increase in borers, there was an average infestation by harvest time. As in past years, the infestation was light in the extreme western and northern parts of the sugarcane section. Although many fields were 100 percent infested, the average for the State is estimated at between 45 and 55 percent of the stalks bored, a little less than the average for the past 3 years. In general, losses have slightly decreased during the past 2 years owing to the replacement of the very susceptible variety P.O.J. 213 by varieties less susceptible to injury, as C.P. 807 and Co. 290. In Florida the infestation in sugarcane was much lower in August and September than normally reported for that time of the year. In the Fellsmere district the infestation was 7 percent, whereas at the same time during the previous year, the infestation was 93 percent. This drop was possibly caused by the destruction of many larvae by the flooding of the stubble after the harvesting of the previous year's crop. In eastern Texas corn planted prior to April 1 developed an unusually heavy infestation, apparently owing to greater winter survival of larvae. Corn in Louisiana and corn planted at a later date in Texas developed average infestations. In rice there was an average borer infestation. About 7 percent of the stalks were bored. From 90 to 95 percent of this injury was caused by the sugarcane borer, the remainder being due to the rice stalk borer (Chilo plejadellus Zinck.). (J. W. Ingram, Bureau of Entomology and Plant Quarantine, U. S. D. A.).

CODLING MOTH

About 30 percent of the larvae of the codling moth above the snow line in Missouri were killed as a result of a very cold spell in March, when the temperature reached -14° F. Heavy mortality was also reported from the New England and Middle Atlantic States, but mortality was negligible from Kansas to the Pacific coast. In Kansas some pupae were found during the first part of February, and in the Pacific Northwest pupation was well under way during the second and third weeks in March. Reports from Washington and California indicate that the insect was from 10 to 20 days earlier than usual. About the middle of April pupation was observed in Maryland and Delaware, and at that time moths were appearing in Georgia. Pupation started in southern Illinois the first week in April. In the Pacific Northwest moths started to emerge during the second week in April, and in the Hudson River Valley in New York, early in May. The peak of emergence had been reached by the end of May in practically all parts of the country. As the season advanced, it became evident that the codling moth was more abundant than usual in the East Central States, about normal in the remainder of the Eastern States, and below normal in the Pacific Northwest. In the Middle West, west of the Mississippi River, the first brood indicated that the infestation would be high, but the second brood was greatly reduced by the drought. Late in the season a heavy third brood practically offset the early light infestation.

PLUM CURCULIO

The plum curculio was generally distributed in the orchards in Georgia by April 10. In South Carolina the first adults were observed on April 2. In Delaware the first emergence was observed during the third week of the month. The first beetles were observed in New York and Massachusetts during the third week in May, when full-grown larvae were beginning to leave peach drops in

central Georgia. Cool, rainy weather in the latter State delayed pupation, but the infestation was heavier than usual. In Alabama the infestation on Carman and Hiley peaches was the heaviest since 1918. Elbertas in Georgia were heavily infested by the second brood. On December 1, O. I. Snapp made the following statement: "An adult emerged from the soil of Fort Valley today, which is the latest emergence date on record. The larva from which this adult was reared entered the soil on or before August 1; therefore, this individual remained in the soil as larva, pupa, and adult at least 122 days, the longest period ever recorded."

ORIENTAL FRUIT MOTH

Winter mortality of the oriental fruit moth in western New York State amounted to 75 percent, and in Delaware ranged from 40 to 50 percent. By the last week in April pupation was fairly well under way in the Middle Atlantic States and emergence of adults had started by the last of the month. First-brood larvae were appearing in peach twigs in the South Atlantic States by the last week in the month. Infestation in twigs was more abundant than usual in New York, Illinois, western Maryland, Virginia, Tennessee, and Alabama. The brood that normally infests the fruit remained in the twigs for hibernation in the Northern States, and was so late coming out in the Southern States that little damage was done.

GRAPE LEAFHOPPER

Early in March the grape leafhopper appeared in large numbers in the San Joaquin and Imperial Valleys of California and the Salt River Valley of Arizona. As the season advanced, the worst outbreak in many years developed in the San Joaquin Valley. Late in June heavy infestations were reported from Michigan and western New York through Pennsylvania, Ohio, and Indiana, and westward to Nebraska, Kansas, and Minnesota. Considerable injury occurred in many localities. In the Niagara district of New York damage was more severe than it has been in many years.

FRUIT FLIES

The extensive use of glass flytraps resulted in taking specimens of the Mexican fruit fly (Anastrepha ludens Loew) from approximately three times as many groves in the lower Rio Grande Valley of Texas as had been found infested in any previous year. Despite intensive inspections of the fruit in the 176 groves in which adult flies were taken, no larvae were found until the latter part of April, after the end of the harvesting and shipping period, when fruit gleaned from four groves in the tree-to-tree inspections in the Mission district was found infested. Adults had previously been taken in three of these groves. Of interest in the larval findings was the fact that several green "October-bloom" fruit were found infested with full-grown larvae, indicating that the eggs had been laid while the fruit was decidedly immature. The inability to locate larval infestations, even in a 35-day extension of the harvesting period, indicates that the number of flies present in the valley was considerably less than during some previous years, even though the number of groves involved shows the infestation to be generally scattered. Three

adult specimens of A. ludens were taken in three groves in Willacy County in January 1934, the first ever taken in this county. During the year specimens of A. ludens, A. serpentina Wied., Anastrepha fraterculus auct., A. pallens Coq., A. striata Schin., Anastrepha spp. (undetermined), the papaya fruit fly (Toxotrypana curvicauda Gerst.), and an unnamed species belonging in the subgenus Pseudodacus, were taken in traps operated in the lower Rio Grande Valley of Texas. With the exception of A. striata, of which a single adult was trapped near Mission, these species have been taken throughout the citrus area of the lower Rio Grande Valley, and with the possible exception of A. fraterculus auct., none of these species are known to exist elsewhere in the continental United States. (P. A. Hoidale, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CITRUS BLACKFLY

In a memorandum dated October 15, 1934, Dr. Wilmon Newell, of the State Plant Board of Florida, makes the following statement: "On August 10 of this year inspectors operating at Key West discovered an infestation of the spiny citrus whitefly or blackfly (Aleurocanthus woglumi Ashby). A survey indicated that from a central point of heavy infestation the insect could be found in diminishing quantities for a distance in all directions of from one-fourth to one-third mile. On August 11, at a conference of United States Department of Agriculture and State Board representatives, an intensive spraying campaign was determined upon. Such a campaign, using an oil spray built after a formula recommended by the Bureau of Entomology and Plant Quarantine and applied with power equipment supplied by that Bureau, was immediately instituted. The campaign was supported by city and county governmental organizations and contemplated as an initial effort three thorough applications of the oil spray at 30-day intervals. At the same time, removal of host material from Key West was prohibited. Intensive inspection by a large force of trained operatives has failed to disclose any infestation other than that at Key West. The oil spray appears to be effective in killing the fly in its various stages."

BOLL WEEVIL

Low temperatures during the latter part of January and February along the Atlantic coast caused heavy mortality of the boll weevil and very few weevils survived in Virginia and the Carolinas. At the Florence, S. C., laboratory the survival in the hibernation cages was the lowest ever recorded. Although the survival was somewhat lower than normal in Georgia and Alabama, it was higher in those States than in the Carolinas. In Mississippi the survival was fairly high but spotted, and in Louisiana it was high. At the Tallulah, La., laboratory, the survival in the hibernation cages has been exceeded in only 1 previous year, 1932, following the warmest winter since the laboratory was established. Survival was also high in Oklahoma and Texas. During the growing season dry weather in June and July held down infestations in the eastern part of the Cotton Belt, and the drought in Oklahoma and Texas not only held down the population, but was so severe as to seriously affect cotton production. After rains began in August the weevil population developed rapidly in those States and caused considerable damage to the late crop

in southeastern Oklahoma and eastern Texas. Early in the season weevils were abundant in Louisiana, Mississippi, and southern Arkansas and caused more damage throughout the season in that region than elsewhere, but here also dry weather late in June and in July helped greatly in preventing weevil damage. Throughout this region cotton was more generally dusted than ever before, and more airplane dusters were in use than during any previous year. The entire northern third of the cotton-growing area was comparatively free of weevils throughout the season. In 1933 seven boll weevils developed in and emerged from Hibiscus syriacus in the field. This constitutes the first record of attack of any plant other than cotton and Thurberia. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PINK BOLL WORM

For the past several years the distribution and abundance of the pink bollworm has been largely determined by gin-trash inspection. By this means infestations have been located in Florida, Georgia, Texas, New Mexico, and Arizona. Infestation has existed for a number of years in Texas, in El Paso, Hudspeth, Presidio, Brewster, Pecos, Reeves, and Ward Counties, and is still present. Infestation was found in the 1933 crop in Bailey, Lamb, Cochran, Hockley, Yoakum, Terry, Gaines, and Dawson Counties, but of these counties only Terry was found infested in 1934. Specimens were found in Midland County also in 1934. With the exception of Brewster, Presidio, and part of Hudspeth County, the infestation has been so light as to cause no commercial damage. Only enough inspection is made each year to determine the continued presence of the insect, therefore it is impossible to give an accurate idea of the abundance. In most of the areas only a few specimens are found, and there has been very little change in populations for the past several years. In Brewster and Presidio Counties the infestation had built up until in 1931 the damage amounted to about 14 percent of the cotton crop for these two counties. In one section of Presidio County the damage ran well over 20 percent, with some few fields being practically a complete loss. For the past three seasons special control measures have been carried on, so that at the end of the 1934 season, even though a large number of worms were present, they developed late in the season and caused very little, if any, loss. For several years infestation has existed in New Mexico in Chaves, Dona Ana, Eddy, Luna, and Otero Counties. In 1933 additional infestation was found in Lea and Roosevelt Counties, but none was found in these two counties in 1934. In Arizona infestations previously occurred in Maricopa, Pima, and Pinal Counties. The last specimens found in Maricopa and Pinal Counties were from the 1931 crop, and in Pima County none has been found since 1927. Specimens were taken in Graham County in the 1934 crop. A small amount of cotton is grown in Greenlee County, ginned in Graham County. It is therefore possible that some of the specimens found this season originated in Greenlee County. The first specimens to be taken in Florida were found in Alachua and Columbia Counties in the 1932 crop, but none have since been found in those counties. During the 1933 season one specimen was found in Madison County and one during the 1934 season. Specimens were found in the 1934 crop in Hamilton, Jackson, Levy, and Suwannee Counties. Infestation was discovered on wild cotton growing along the coast and on keys or islands in southern Florida in 1932. The

most northerly infestation on the east coast was at Lake Worth in Palm Beach County, and on the west coast on Terra Ceia Island in Manatee County. The eradication of the wild cotton was immediately begun, and has been in progress now for 3 years. During the course of the eradication, inspections are made from time to time, and so far this season no infestations have been found. Most of the plants now being removed are seedlings and sprouts, and they contain very little or no fruit. As no systematic inspections have been made of this wild cotton, it is impossible to give any accurate idea of the condition of infestation at this time. In Georgia specimens were found in the 1933 crop in Berrien and Tift Counties, but none were found in the 1934 crop. (R. E. McDonald, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

VEGETABLE WEEVIL

The vegetable weevil was reported as damaging truck crops in Alabama and Mississippi during January. As the season advanced, it became evident that the insect was not so injuriously abundant as usual. The most significant development occurred in California, the insect being discovered for the first time in the Sacramento Valley in Sacramento County, and in southern California in Los Angeles and Orange Counties. It was reported on avocado and citrus in Orange County. During the fall of 1934 the weevil did not start feeding heavily along the Gulf coast until the latter half of October. Oviposition started during the last 10 days of October.

In 1933 the weevil was found for the first time in Tennessee, in Hardin County.

MEXICAN BEAN BEETLE

Reports on the Mexican bean beetle from Ohio indicate that in that State the low temperatures late in January produced a high mortality of the hibernating beetles. Similar high mortality was reported eastward to northern Delaware. However, as the season advanced, it became evident that enough of the beetles had successfully passed the winter to occasion considerable damage throughout most of the known infested range. Damage was considerably less than early in the season last year. By fall heavy infestations had reestablished themselves over most of the infested territory. The beetle has spread northeastward in Maine to Sagadahoc, Lincoln, Knox, and Waldo Counties, the southeastern part of Penobscot, and the southern part of Somerset. It was reported for the first time from Orange and Windsor Counties, Vt. It extended its range in Mississippi southward to Stone County and westward to Webster County.

PEA APHID

In February and the early part of March the pea aphid built up a considerable population in early seeded vetch and pea fields in Oregon and California. In April it was reported as damaging alfalfa in Indiana and from southern Iowa and Nebraska southward through Missouri to Mississippi and westward through the Great Basin to the Pacific Northwest. By the end of March vetch and Austrian field peas were being destroyed in the Willamette Valley, Oreg., and

the Puyallup Valley, Wash. Rather heavy infestations were observed early in the season in the cannery-pea sections of Michigan and Wisconsin. High temperatures during the latter half of May reduced the infestation to negligible numbers in these States. In New York State a very heavy infestation occurred on late peas and many fields were plowed under. An unusual outbreak also occurred in northern Idaho and eastern Washington, particularly on late varieties of peas.

PEA MOTH

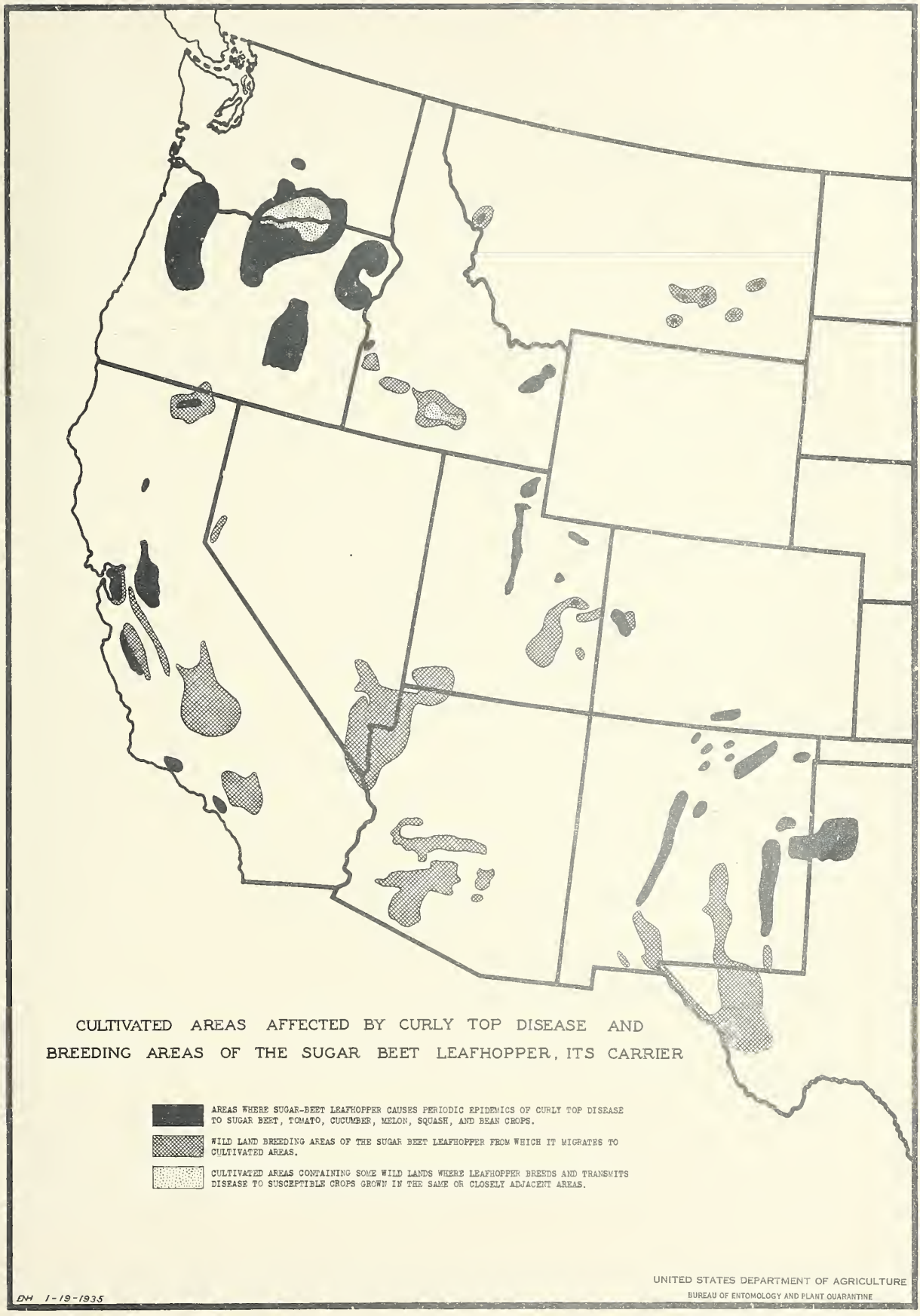
The pea moth (Laspeyresia nigricana Steph.) was reported as causing considerable loss to pea growers in Whatcom and Skagit Counties, Wash., during the summer. The insect was also reported from British Columbia about the same time. These constitute the first records of occurrence in the western part of North America. The first record of appearance in the United States was made in 1908 in Charlevoix County, Mich. Since that time it has been reported from Wisconsin, Indiana, and New York. It has been known in Canada since 1893 and occurs from Manitoba eastward to Nova Scotia.

BEET LEAFHOPPER

During 1934 the investigations on the beet leafhopper were continued in Idaho, Utah, California, and Colorado. The curly-top disease transmitted by this pest caused severe injury to the sugar beet crop in all of the intermountain regions. Early in the season the prospects were for low leafhopper populations in the Idaho beet-growing area. However, unexpected numbers migrated into the cultivated area, resulting in the abandonment of a considerable portion of the acreage that had been planted. This influx of the leafhopper was not due to a development of the pest in areas which had heretofore been considered as important in contributing to the leafhopper populations in the beet-growing areas, but was attributable to a migration from an unknown distant breeding area (see map). The abandonment of acreage, plus shortage of irrigation water, caused an estimated reduction of nearly 95 percent in the tonnage of sugar beets produced in Idaho during 1934, as compared to 1933 (20,000 versus 353,000). Similar losses were sustained by the bean industry, it being estimated that crop reduction from the beet leafhopper outbreak in two representative districts, Twin Falls and Filer, amounted to from 30 to 50 percent on contract beans, with significant losses to commercial white beans (Great Northern).

In Utah the leafhopper was very abundant, corroborating the early season predictions based on population studies on the wild host plants in the desert areas. In general, the beet crop of Utah was very seriously damaged by curly-top, as evidenced by the estimated 1934 production of 225,000 tons, as compared to approximately 912,000 tons in 1933, the reduction being caused principally by the disease. These losses were sustained in practically all of the beet-growing districts of the State, with the exception of the Cache Valley.

In California the program for the spraying and elimination of the wild host plants which was conducted in the San Joaquin Valley apparently reduced leafhopper damage, as the preceding mild, dry winter would have permitted


CULTIVATED AREAS AFFECTED BY CURLY TOP DISEASE AND
BREEDING AREAS OF THE SUGAR BEET LEAFHOPPER, ITS CARRIER
AREAS WHERE SUGAR-BEET LEAFHOPPER CAUSES PERIODIC EPIDEMICS OF CURLY TOP DISEASE TO SUGAR BEET, TOMATO, CUCUMBER, MELON, SQUASH, AND BEAN CROPS.
WILD LAND BREEDING AREAS OF THE SUGAR BEET LEAFHOPPER FROM WHICH IT MIGRATES TO CULTIVATED AREAS.
CULTIVATED AREAS CONTAINING SOME WILD LANDS WHERE LEAFHOPPER BREEDS AND TRANSMITS DISEASE TO SUSCEPTIBLE CROPS GROWN IN THE SAME OR CLOSELY ADJACENT AREAS.
UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
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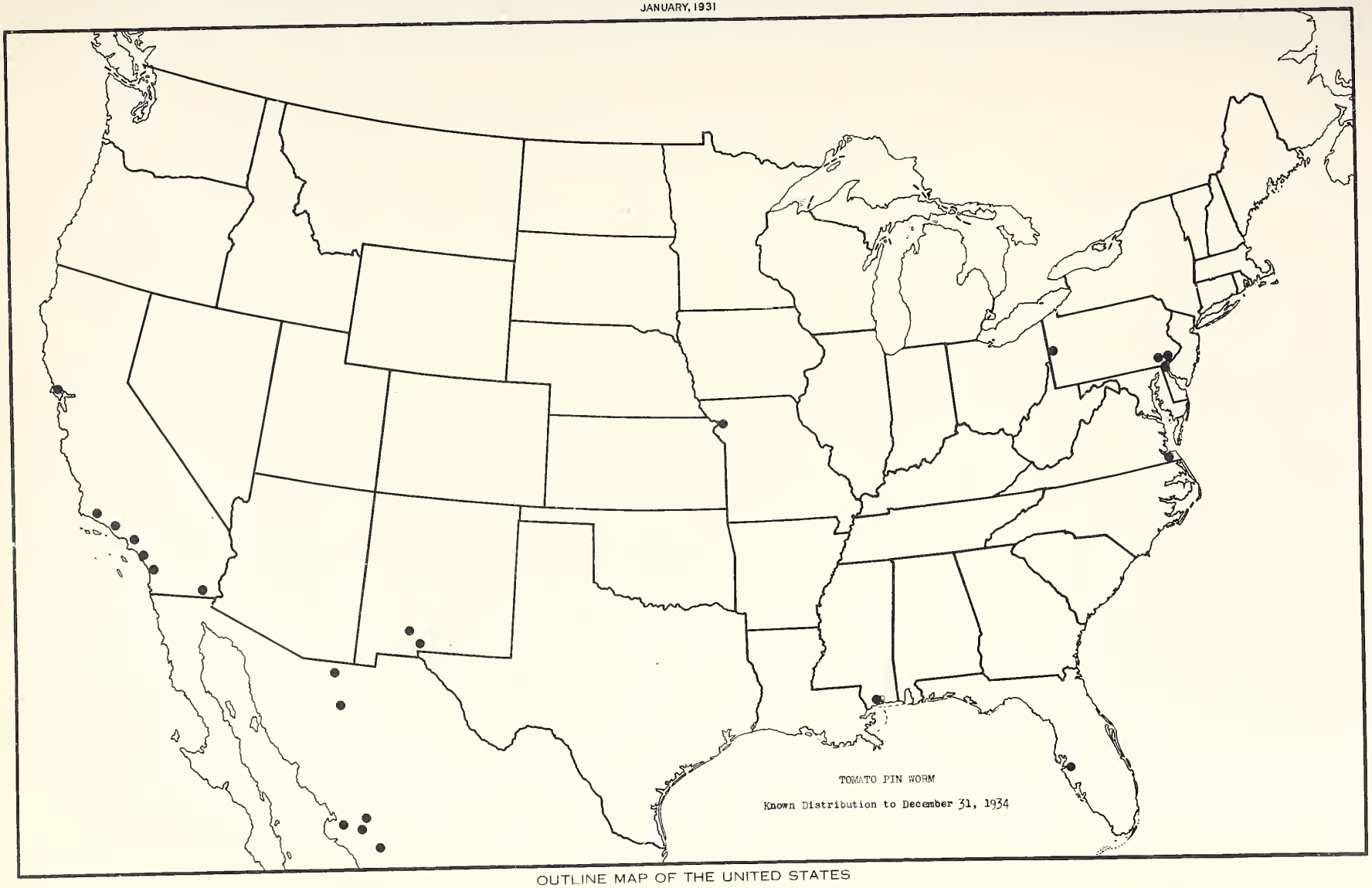
JANUARY, 1931



OUTLINE MAP OF THE UNITED STATES

the large overwintering populations to build up in destructive numbers. Exceptionally good yields were obtained in 1934 in the principal beet-growing districts, averaging approximately 15.5 tons per acre in the San Joaquin, Sacramento, and Salinas Valleys, representing increased yields, as compared to those of 1933. Curly-top caused some damage in the southern end of the Salinas Valley, where the acreage was reduced from the plowing up of some of the beets severely infected by this disease early in the season. Curly-top (western yellow blight) was also prevalent in tomatoes grown in the San Joaquin Valley in 1934. In a survey of 1,887 acres of this crop, in eight different localities of the valley where the leafhopper was most numerous, it was estimated that an approximate loss of 16.6 percent was sustained from this cause, the estimate being based on the percentage of diseased plants.

In western Colorado and adjacent portions of eastern Utah, the predicted abundance of the leafhopper was corroborated. Curly-top reduced the yield of sugar beets approximately 1 ton per acre in 1934 over that of 1933 (8.78 versus 9.94), as compared to a normal yield, which ranges from 12 to 15 tons per acre. Part of the reduction in beet tonnage may be attributed to shortage of irrigation water, but this was of minor importance as compared to curly-top injury. (D. J. Caffrey, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOMATO PIN WORM

The tomato pin worm (Gnorimoschema lycopersicella Busck) has become established in several widely separated localities in Eastern United States during the last 5 years (see map). The first record was of a localized infestation in a greenhouse at Coatesville, Chester County, Pa., in the fall of 1929. In 1930 tomatoes in nearby fields were severely infested. This infestation was thought to be eradicated, but again in 1931 the insect was reported as attacking tomatoes in the fields near Coatesville. It was not seen again in this district until the fall of 1933, when it was found in a number of greenhouses from Avondale, Chester County, to Brandywine Summit, Delaware County. Numerous outdoor plantings were also severely infested. In October 1933 it was discovered in western Pennsylvania in a greenhouse at Wampum, Lawrence County. The grower there said that the insect had also been numerous in the field during the summer and that he had first noticed it in 1932. It was found about this time in a greenhouse at New Castle, Lawrence County. The grower there said he had never seen the insect in the field, but that it had been in the greenhouse for about 3 years. Another greenhouse in New Castle was found to be slightly infested. During the spring of 1932 the pin worm caused serious injury to tomatoes at Bradenton, Manatee County, Fla. In the spring of 1933 the insect was recorded from a greenhouse in Norfolk, Va. It was recorded from a greenhouse near Wilmington, Del., in January 1934, where by June half the plants were ruined. In May 1934 the insect was first discovered in Mississippi at Gulfport. Later in the summer it was found in the field. The grower said that he lost two-thirds of his crop in 1933. It was also found at Long Beach. In October 1934 it was discovered in a greenhouse at Saint Joseph, Mo. In addition to the new records for 1934, the insect was reported from all the older infested localities. It was very abundant in southern California, where some fields had practically 100 percent

infestation. In the original description (Hawaii. Ent. Soc. Proc. 7 (1), 1928) Busck gives the distribution as Hawaii, California, and Mexico. The only other record in the United States was made in 1931 in Dona Ana County, N. Mex.

PERIODICAL CICADA

Brood VIII of the periodical cicada (Magicicada septendecim L.) appeared in considerable numbers in a compact area in western Pennsylvania and eastern Ohio. The old brood on Martha's Vineyard Island, Mass., reappeared and single individuals were recorded in Maryland near Washington, D. C., and in northern Virginia. A few specimens of the small form, cassinii Fisher, were reported from northeastern Kansas. Brood XX of the 13-year race, M. tredecim Walsh and Riley, was represented by colonies in central Haroldson and southern Pike Counties, Ga. County records for the year are as follows:

Brood VIII: Kansas, Douglas, Leavenworth;
Maryland, Montgomery, Prince Georges;
Massachusetts, Dukes; Ohio, Carroll,
Columbiana, Delaware, Mahoning, Stark;
Pennsylvania, Allegheny, Armstrong, Beaver,
Clarion, Fayette, Indiana, Jefferson, Lawrence,
Luzerne, Mercer, Venango, Washington, Westmoreland; Tennessee, central and eastern parts;
Virginia, Frederick.

Brood XX: Georgia, Haroldson, Pike.

JAPANESE BEETLE

The area continuously infested by the Japanese beetle at the end of the 1934 season is estimated as 9,700 square miles, an increase of 900 square miles over that of 1933 (see map). Of this area 6,160 square miles is in New Jersey, 2,600 in Pennsylvania, 660 in Delaware, 120 in Maryland, and 160 in New York. Within this area of continuous infestation the population varies greatly. There has been no appreciable increase in numbers in the older infested sections of New Jersey, near the northern limits of distribution or in the coastal sections of the State. The numbers have increased over 1933, however, in Monmouth County, N. J., and in all of the continuously infested area in Pennsylvania, Maryland, and Delaware. Areas of exceptionally heavy tree injury were more numerous in 1934 than in 1933. The most extensive of these was in extreme southwestern New Jersey, but others were well developed in Pennsylvania west and southwest of Philadelphia, and in northeastern Delaware. The work of the season indicates that, with the exception of three localities, the beetle has not become established in any place outside the present regulated areas. The capture of a few beetles at certain points outside the regulated area does not mean that an infestation is established. The most outstanding first-record find of the Japanese beetle at a point remote from the infested areas was at St. Louis, Mo., where beetles were collected in such numbers as to indicate an established infestation. Another first-record find consisted of 17 beetles caught at Indianapolis, Ind., in a residential section of the city at some distance from a railroad line.


PERIODICAL CICADA
KNOWN DISTRIBUTION OF BROODS VIII AND XX
TO AND INCLUDING 1934
• BROOD VIII, 1934 RECORDS
o BROOD VIII, PREVIOUS RECORDS
◉ BROOD XX, 1934 RECORDS
◎ BROOD XX, PREVIOUS RECORDS
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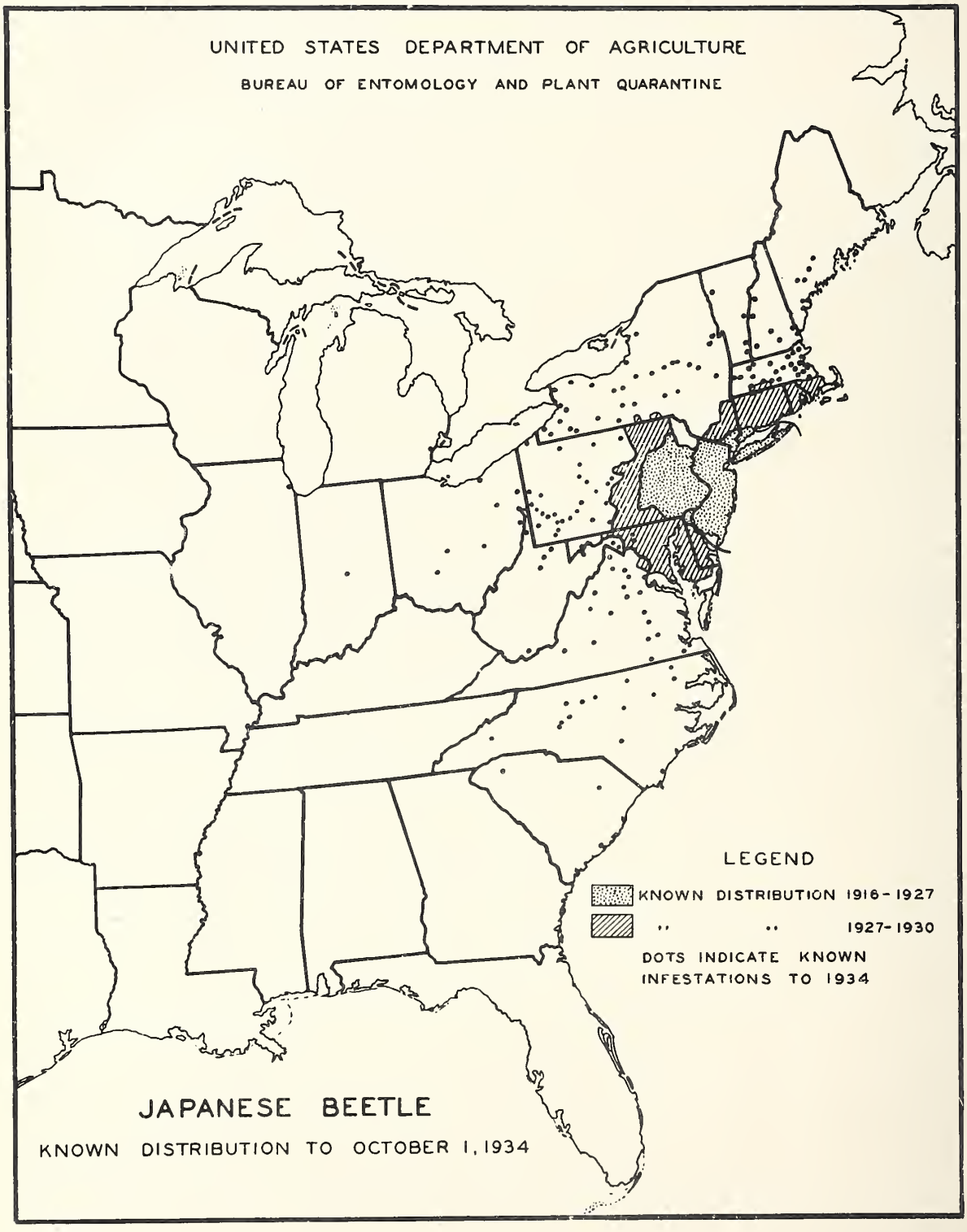
UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE


UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
LEGEND
KNOWN DISTRIBUTION 1916-1927
" " 1927-1930
DOTS INDICATE KNOWN INFESTATIONS TO 1934
JAPANESE BEETLE
KNOWN DISTRIBUTION TO OCTOBER 1, 1934

This infestation probably resulted from illegal transportation of infested plant material. The infestation at Charlottesville, Va., can probably be accounted for in the same way. Beetles were first found at Charlottesville in 1932. This year 60 beetles were trapped in that city. Other first-record trappings include 6 beetles taken at Chicago and 1 at East Saint Louis, Ill. The locations at which the beetles were trapped in Chicago and East Saint Louis, point to the probability of these having been transported from the heavily infested sections of New Jersey or Pennsylvania via rail in refrigerator cars containing agricultural products not ordinarily subject to infestation. As a result of this season's trapping activities, additional catches were recorded in 5 cities in Maine; in 58 Maryland communities, both inside and outside the regulated zone; in Detroit, Mich., where a few beetles have been trapped each year since 1932; in 9 New York cities; in 6 localities in Ohio; at Erie, Pa., where an infestation was first determined in 1931; in 6 cities in Virginia; and at 7 points in West Virginia. Traps set in Greenville, S. C., in an effort to pick up additional beetles at the site where 2 beetles were collected by hand, failed to catch any further specimens. Practically all of the few first-record infestations found in these States consisted of a few beetles each. None of them clearly pointed to an established infestation. The remaining infestations were largely survivors of known incipient infestations which successive years' trappings have shown not to have built up. (C. H. Hadley and L. H. Worthley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ASIATIC BEETLES

The known distribution of Anomala orientalis Waterh. has not changed from that given in the summary for 1933. The area infested by the Asiatic garden beetle (Autoserica castanea Arrow), however, has increased somewhat in 1934. On Long Island the infestation has moved eastward in Suffolk County, and in Westchester County, N. Y., and in Fairfield County, Conn., the area generally infested has become enlarged. In northeastern New Jersey there has likewise been an enlargement of the generally infested area and the degree of infestation in this area has been somewhat greater than in 1933. In all of the infested territory A. castanea has been fully as destructive to plants as in previous years, and in addition has been decidedly a nuisance, because of the large numbers of beetles that collect on warm nights in places illuminated by high-powered lights. The following records of new infestations were made during the year: Coscob and Danbury, Fairfield County, Conn.; Moorestown, Burlington County, Milltown, Middlesex County, Allenhurst, Monmouth County, Morristown, Morris County, Bound Brook, Somerset County, and Roselle Park, Union County, N. J.; Dobbs Ferry and Valhalla, Westchester County, N. Y.; and Cheltenham, Montgomery County, Pa. (C. H. Hadley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

GYPSY MOTH

The percentage of hatch of egg clusters of the gypsy moth in the spring of 1934 was very variable. The severe cold of the winter of 1933-34 killed many egg clusters, but killing cold was not uniform over extended sections of the infested area, as considerable hatching of exposed clusters was noted in a

number of places. Clusters in stone walls or other protected places close to the ground, where they were covered with snow and not exposed to the extreme cold, showed nearly perfect hatch in many localities. The larvae hatching from such protected egg clusters were abundant enough to cause severe defoliation in many places. During the summer there was from partial to complete defoliation in 492,361 acres of woodland, an increase of nearly 100,000 acres over 1933. In Maine, New Hampshire, and Rhode Island the areas of defoliation were considerably more extensive than in 1933. In Massachusetts there were less extensive areas of defoliation in the eastern and southeastern sections but this decrease was offset, to some extent, by more extensive defoliation than had ever been recorded for the territory between the middle of Worcester County and the Connecticut River. In Vermont and Connecticut small areas of defoliation were noted. As the result of the scouting work in northern Vermont in the fall and winter of 1933-34, 15 towns, immediately east of the barrier zone which were found uninfested, were taken out of the regulated area and added to the zone. These towns extend from the Canadian border to, and including, the town of Hancock in Addison County--an area of 604 square miles. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BROWN-TAIL MOTH

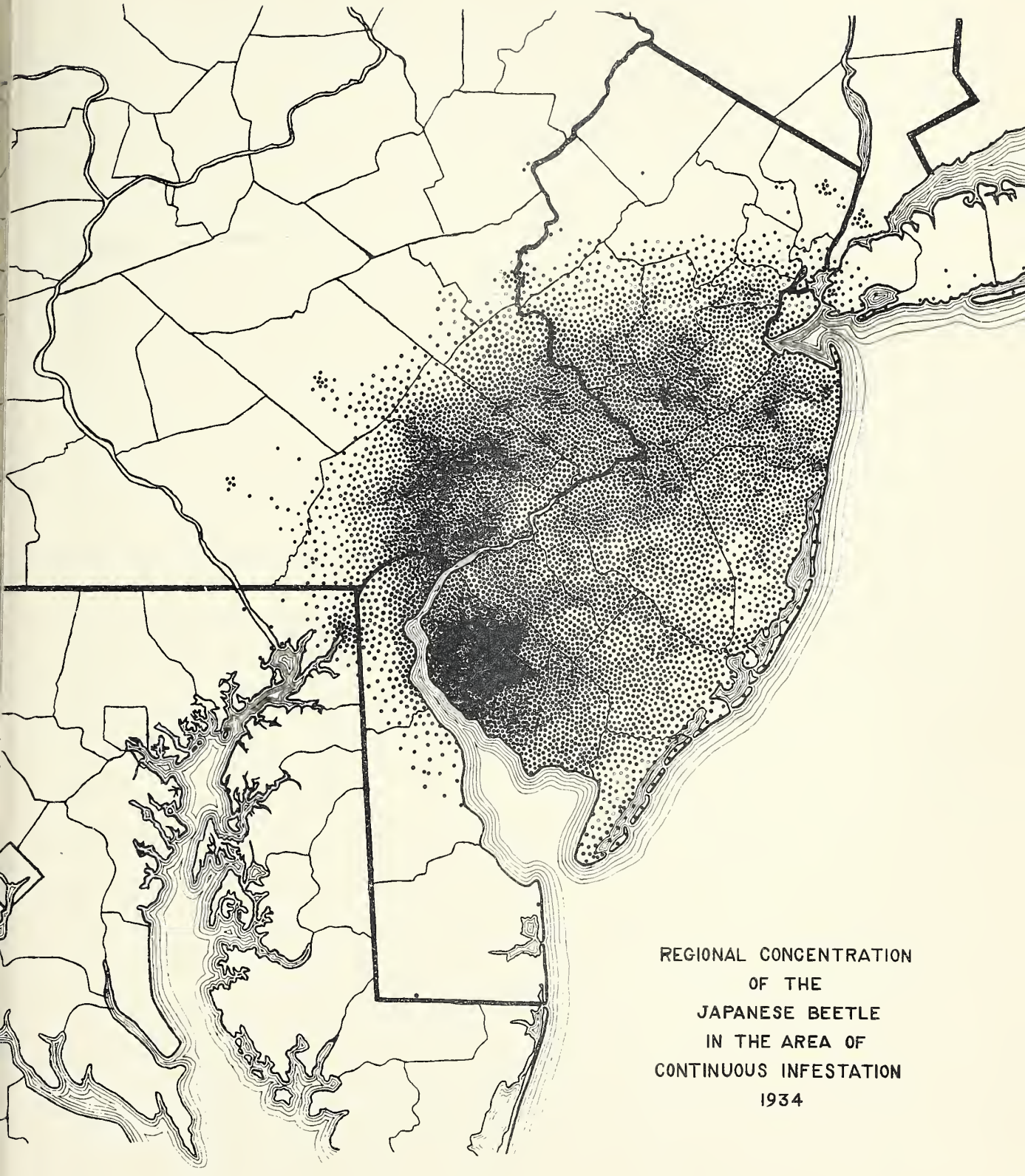
In general, there is only a light infestation of the brown-tail moth over the greater part of the infested territory. No cases of severe defoliation were reported this past summer. This may be due, in part, to the enormous number of winter webs that were cut and burned last winter under Civil Works authorization and, in part, to winter mortality of hibernating larvae caused by the extreme cold. Two new infestations outside the regulated zone were found in Maine, one at Orono and the other at Old Town. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SATIN MOTH

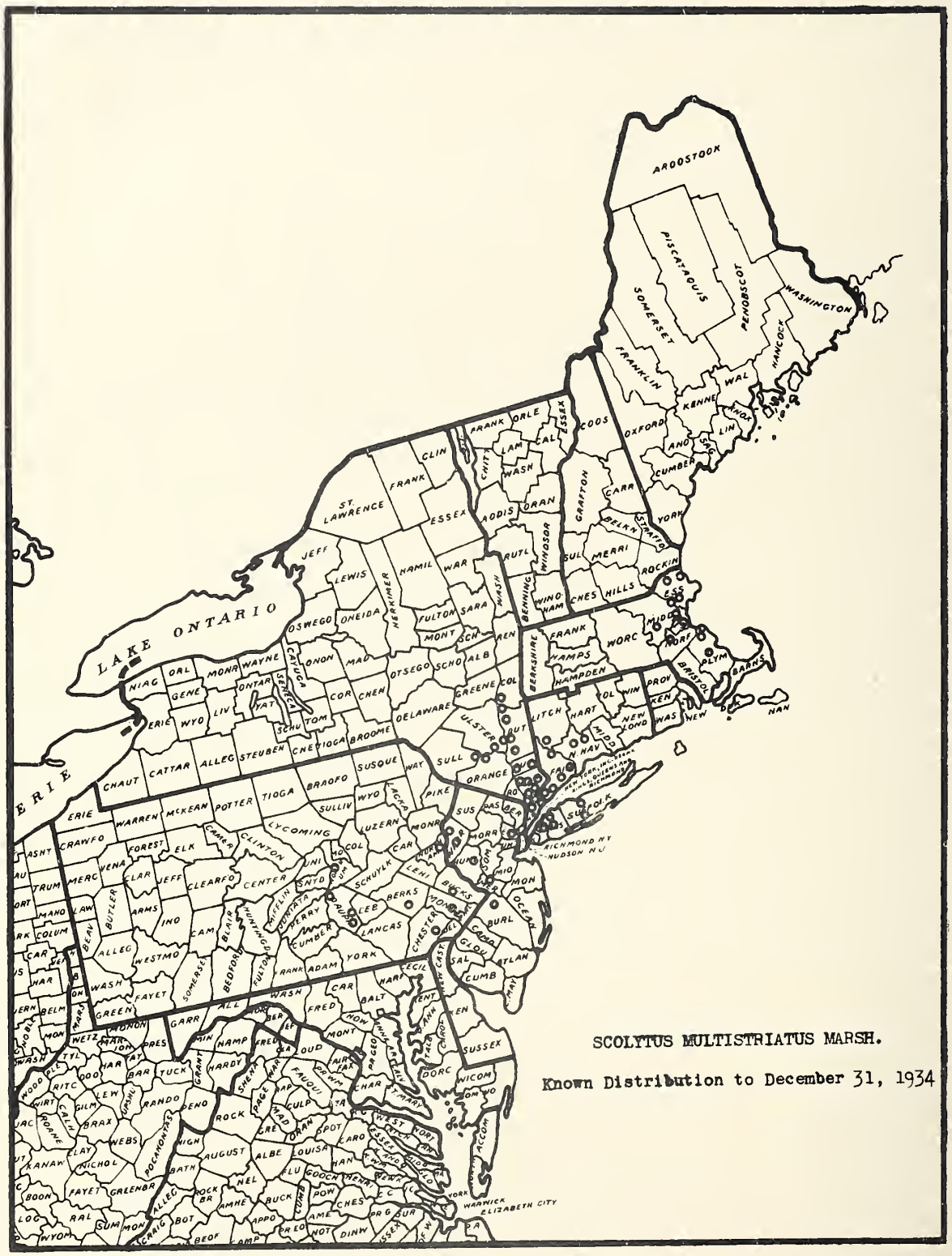
With few exceptions, the infestation of the satin moth appears to be low throughout the infested area. In practically all of the area the infestation was not severe enough to cause any appreciable defoliation, with the exception of one town immediately northeast of Boston and another on the Massachusetts-Rhode Island line. This insect has been known to occur in the State of Washington since 1922, and was found this year in the vicinity of Gervais, Oreg. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ELM LEAF BEETLE

The elm leaf beetle was reported to be defoliating elms in Yakima, Wash., during the third week in April. Adults began leaving hibernation quarters in the New England States the first week in May. During the latter part of May it was reported as damaging elms in southwestern Ohio and in July it was reported from the Bluegrass Region of Kentucky. In May reports of damage were received from southwestern Idaho and later in the season the beetle was reported as being present throughout the Boise and Payette Valleys, where



REGIONAL CONCENTRATION
OF THE
JAPANESE BEETLE
IN THE AREA OF
CONTINUOUS INFESTATION
1934



SCOLYTUS MULTISTRIATUS MARSH.

Known Distribution to December 31, 1934

many unsprayed trees had been defoliated. In August it extended its range southward along the western side of the Sacramento Valley to Colusa County, and an isolated infestation was found at Port Costa, Contra Costa County, Calif. The infestation in the New England and Middle Atlantic States was considerably lighter than it has been for the last few years.

A BARK BEETLE

The discovery of great numbers of elm trees affected by the Dutch elm disease in the New York, New Jersey, and Connecticut area and the proof during the past year that Scolytus multistriatus Marsh. is able to transmit the organism causing this disease, make the distribution of this insect a matter of especial importance at this time. During the fall of 1933, J. N. Knull was employed by the Division of Forest Insects of the Bureau of Entomology and Plant Quarantine to make a survey of the distribution of the species. The records of this survey are presented in the accompanying map and the following list of localities.

Connecticut.--Meriden, North Stanford, Noroton, Glenville, Brookfield, New Milford, Naugatuck, and Fairfield.
Massachusetts.--Dover, Boston, Cambridge, Danvers, Wakefield, Halifax, South Hingham, Wayland, Haverhill, and Newburyport.
New Jersey.--East Orange, Princeton, Columbus, Flemington, Delaware, Bridgeville, Oxford, and Mount Pisgah.
New York.--Dobbs Ferry, Armonk, Jamaica, Roslyn, Bay Shore, Bronx Park, Tarrytown, Beechhurst, Peekskill, Rye, Fishkill, Croton-on-Hudson, Poughkeepsie, Staatsburg, Clermont, Red Hook, Katonah, Port Chester, Bedford, Brewster, Cold Spring, Milton, Wallkill, Pine Bush, and Bloomingburg.
Pennsylvania.--Stoverdale, Bainbridge, Chalfont, Center Square, West Chester, Reading, Hershey, Sunbury, and Bangor.

The Division of Forest Insects is very much interested in obtaining all possible records of the occurrence of this beetle and, as other insects may also be able to transmit the Dutch elm disease fungus, this office will welcome notes on all insects attacking elm, especially if accompanied by specimens of the insects for identification. (William Middleton, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SCREW WORMS

Late in the summer of 1933 screw worms (Cochliomyia americana Cushing and Patton and C. macellaria Fab.) occurred as serious pests of livestock in a number of counties in southern Georgia and northern Florida. In May 1934 infestations began to be reported in this general area, and as the season advanced the injury by the pests spread widely over the Southern States and appeared in isolated areas in the North Central States. At the close of the season the screw worms had appeared as important pests of livestock in 57 counties in Florida and 120 counties in Georgia. In the southern third of South Carolina and throughout the southern half of Alabama, Mississippi, and Louisiana the infestation was also severe. Heavy losses

were experienced in the coastal region of Texas, thus connecting the newly infested area in the Southeast with the normally infested area in Texas. The number of screw worm cases in the western part of Texas and westward through New Mexico, Arizona, and California during 1934 was apparently somewhat below normal for that region. This was due doubtless in a large part to the drought. The appearance of the screw worm as a pest of livestock in northwestern Iowa and southern and central Indiana is noteworthy. The infestation in Iowa centered in Plymouth County and extended into Woodbury and parts of Monona and Cherokee Counties. Veterinarians reported that they treated about 330 cases in Iowa. The screw worm was present in limited numbers in the vicinity of Sioux Falls, S. Dak. Specimens collected from wounds from a number of cases were definitely identified by E. F. Knipling as C. americana. In Indiana definite records of screw worm occurrence were obtained from Lawrence, Hendricks, and Montgomery Counties. Specimens reared from wounds proved that C. americana was involved.

A brief survey of south-central and western Tennessee by O. G. Babcock late in the season indicated that a limited number of cases occurred in that area, and a survey made by E. W. Laake in southern Louisiana showed that the infestation of cattle in seven parishes ranged from 1 to 15 percent. The infestation among horses and mules in the same area was found to have the same percentage range. The infestation among sheep ranged from 1 to 40 percent and among hogs from 3 to 25 percent.

Accurate figures on the number of cases occurring in different types of animals were obtained by D. C. Parman and his associates in 21 counties in southern Mississippi. This survey indicated that 12 percent of all animals in the counties were infested, the percentage by different species of animals being as follows: Cattle 11, sheep 15, goats. 6, horses and mules 9, hogs 11, and dogs 14. Somewhat similar percentages of infestation were reported from Georgia by W. E. Dove and from Florida by W. V. King.

It has been found practically impossible to arrive at a reasonably accurate estimate of the death loss of livestock in invaded territories. Reports obtained from a considerable number of county agents in Georgia indicated the death loss in 86 counties of that State to be over 50,000 head. (F. C. Bishopp, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BUFFALO GNATS

A heavy infestation of Buffalo gnats (Simulium spp.) occurred in the Ohio River bottoms of Kentucky and in east-central Arkansas during the last week in April. In Arkansas 100 head of mules were killed in one county alone and the total number of deaths in the State was estimated at 500 head.

NEW AND LITTLE-KNOWN PESTS

The coreid Phthia picta Drury was reported as very destructive to tomato near Eagle Pass, Maverick County, Tex., during the fall. A similar occurrence in the fall of 1892, at Bexar, Bexar County, Tex., was recorded by Riley and Howard (Insect Life, April 1893: 282). Van Duzee, in his Catalogue of the Hemiptera of America North of Mexico, lists the insect from California. E. A. Schwarz (Proc. Ent. Soc. Wash., I: 224) records finding the insect attacking tomato near Biscayne Bay and Lake Worth, Fla. It is very common in the West Indies, where it injures solanaceous plants and sometimes attacks cotton.

The leafhopper Cicadula maidis De Long and Wolcott was described in 1923 from a specimen collected on corn in Puerto Rico. It also occurs in Cuba. Its first appearance in the United States was in San Bernardino County, Calif., in 1933, and it was found on corn in Los Angeles County in 1934. A survey was conducted that year in California and the leafhopper was found to be present in Santa Barbara, Kern, San Bernardino, Ventura, Los Angeles, Orange, Riverside, and San Diego Counties.

A cryptorhynchid weevil was discovered attacking peppers (Capsicum sp.) in Dade County, Fla., in November 1931, and was reported again in November 1933, when it was determined as Collabismodes cubae Boh. This constitutes the first record of this weevil in the United States. It is recorded as occasionally attacking peppers in Cuba.

A bostrichid, Stephanopachys pacificus Csy., was discovered eating holes in apples in Chelan County, Wash., in September. This is the first time this insect has been observed damaging fruit.

Periclista hicoriae Rohw. was described from specimens collected from Hicoria glabra at Charteroak, Huntingdon County, Pa., in May 1914. In April 1931 the sawfly was discovered attacking pecan along the coast of Mississippi. In 1934 it was reported as occurring there in great abundance over a considerable territory.

A pyralid, Pachyzancla periusalis Walk., was reported as attacking tomato in greenhouses, and tomato and eggplant in fields near Experiment, Ga. This insect has been recorded in literature as occurring on various species of solanaceous plants in the Gulf States from Florida to Louisiana.

The Asiatic scale insect Odonaspis penicillata Green, known as a pest of bamboo in China, Ceylon, and India, has been reported on a few occasions in Louisiana. During 1934 this pest was recorded as attacking bamboo in Mississippi.

Parlatoria oleae Colv. was discovered in November 1934 attacking olives near Fresno, Calif. This scale was discovered at Baltimore, Md., in 1927, attacking California privet, and was reported again this year at College Park, Md. During 1932 it was found at Tucson, Ariz., where it is now well established, and attacks a wide variety of plants, including olive, almond, palms, and citrus.